

1 **CLAIMS**

- 2 **1.** A computing device comprising:
- 3 one or more processors;
- 4 memory operably associated with the one or more processors;
- 5 one or more applications loadable in the memory and executable on the one
- 6 or more processors; and
- 7 the one or more processors being configured to:
- 8 receive context information from externally of the device, the
- 9 context information pertaining to one or more current device contexts;
- 10 automatically determine one or more current contexts from the
- 11 context information;
- 12 locally evaluate a collection of policies in connection with the one or
- 13 more current contexts to provide a resultant set of policies; and
- 14 enforce the resultant set of policies on the one or more applications.
- 15
- 16 **2.** The device of claim 1, wherein the device is configured to receive
- 17 context information from multiple different context providers that provide
- 18 different types of context information.
- 19
- 20 **3.** The device of claim 1 further comprising one or more hierarchical
- 21 traversable tree structures on the device, the tree structures comprising individual
- 22 nodes each of which being associated with a device context, the device being
- 23 configured to automatically determine one or more current contexts by traversing
- 24 at least one node on at least one of the tree structures.
- 25

1 **4.** The device of claim 3, wherein the one or more hierarchical tree
2 structures comprise at least one primary tree structure, at least one secondary tree
3 structure, and at least one link between the primary and secondary tree structures,
4 the link being traversable to determine the one or more current contexts.

5
6 **5.** The device of claim 3, wherein the one or more hierarchical tree
7 structures provide a common abstract representation of context.

8
9 **6.** The device of claim 1, wherein the device is configured to determine
10 the one or more current contexts dynamically.

11
12 **7.** The device of claim 1, wherein the device is configured to receive
13 policies from different policy sources.

14
15 **8.** The device of claim 1, wherein the device is configured to receive
16 policies from different policy sources, the policies from the different policy
17 sources being defined in terms of a common abstract representation of context.

18
19 **9.** The device of claim 1 embodied as an enterprise device, the
20 collection of policies comprising at least enterprise policies that are defined in
21 terms of a common abstract representation of context.

22
23 **10.** The device of claim 1 embodied as a portable device.
24
25

1 **11.** The device of claim 1 embodied as a wireless device.

2
3 **12.** The device of claim 1 embodied as a handheld device.

4
5 **13.** A computing device comprising:

6 one or more processors;

7 memory operably associated with the one or more processors;

8 one or more applications loadable in the memory and executable on the one
9 or more processors; and

10 the one or more processors being configured to:

11 receive context information from externally of the device, the
12 context information pertaining to a current device context; and

13 enforce a set of policies on the one or more applications, the set of
14 policies pertaining to a current context that is associated with the context
15 information.

16
17 **14.** The computing device of claim 13, wherein the one or more
18 processors are configured to determine the current context from the context
19 information.

20
21 **15.** The computing device of claim 13, wherein the one or more
22 processors are configured to locally evaluate a collection of policies, in connection
23 with the received context information, to provide the set of policies.

1 **16.** A method of operating a computing device comprising:
2 receiving context information from externally of a computing device, the
3 context information pertaining to a current device context;
4 automatically determining, with the computing device, a current context
5 using the context information;
6 evaluating a collection of policies in connection with the current context to
7 provide a resultant set of policies; and
8 enforcing the resultant set of policies on one or more applications that are
9 executable by the computing device.

10
11 **17.** The method of claim 16, wherein said evaluating comprises locally
12 evaluating the collection of policies using the computing device.

13
14 **18.** The method of claim 16, wherein said evaluating comprises
15 evaluating the collection of policies remote from the computing device.

16
17 **19.** The method of claim 16, wherein said receiving comprises receiving
18 context information from multiple different context providers that provide
19 different types of context information.

20
21 **20.** The method of claim 16, wherein said receiving comprises
22 wirelessly receiving the context information.

1 **21.** The method of claim 16, wherein said automatically determining
2 comprises:

3 providing one or more hierarchical traversable tree structures on the device,
4 the tree structures comprising individual nodes each of which being associated
5 with a device context; and

6 traversing at least one node on at least one of the tree structures to provide
7 the current context.

8
9 **22.** The method of claim 21, wherein the one or more hierarchical tree
10 structures comprise at least one primary tree structure, at least one secondary tree
11 structure, and at least one link between the primary and secondary tree structures,
12 the link being traversable to determine the device's current context.

13
14 **23.** The method of claim 21, wherein the one or more hierarchical tree
15 structures provide a common abstract representation of context.

16
17 **24.** The method of claim 16 further comprising receiving policies from
18 multiple different policy sources.

19
20 **25.** The method of claim 16 further comprising receiving policies from
21 multiple different policy sources, the policies being defined in terms of a common
22 abstract representation of context.

1 **26.** The method of claim 16, wherein the computing device comprises
2 an enterprise computing device and further comprising receiving policies from an
3 enterprise policy source, the policies being defined in terms of a common abstract
4 representation of context.

5
6 **27.** One or more computer-readable media having computer-readable
7 instructions thereon which, when executed by a computer, cause the computer to
8 implement the method of claim 16.

9
10 **28.** A method of operating a computing device comprising:
11 receiving context information from externally of a computing device, the
12 context information pertaining to a current device context; and
13 enforcing the resultant set of policies on one or more applications that are
14 executable by the computing device, the resultant set of policies pertaining to a
15 context that is associated with the context information that is received.

16
17 **29.** The method of claim 28 further comprising determining, on the
18 computing device, a context that is associated with the context information.

19
20 **30.** The method of claim 28 further comprising locally evaluating a
21 collection of policies responsive to receiving the context information, said
22 evaluating providing a resultant set of policies.

1 **31.** The method of claim 28 further comprising receiving one or more
2 policies from externally of the computing device, said one or more policies being
3 associated with a context which is, in turn, associated with the context
4 information.

5
6 **32.** A computing device comprising:
7 one or more processors;
8 memory operably associated with the one or more processors;
9 one or more applications loadable in the memory and executable on the one
10 or more processors; and
11 the one or more processors being configured to:
12 receive context information from externally of the device, the
13 context information pertaining to a current device context;
14 automatically determine a current context from the context
15 information;
16 locally evaluate a collection of policies in connection with the
17 current context to provide a resultant set of policies;

1 enforce the resultant set of policies on the one or more applications;
2 and
3 responsive to receiving context information that indicates a change
4 of current context:
5 locally re-evaluate the collection of policies to provide a new
6 resultant set of policies; and
7 enforce the new resultant set of policies on the one or more
8 applications.

9
10 **33.** The device of claim 32, wherein the device is configured to receive
11 context information from multiple different context providers that provide
12 different types of context information.

13
14 **34.** The device of claim 32 further comprising one or more hierarchical
15 traversable tree structures on the device, the tree structures comprising individual
16 nodes each of which being associated with a device context, the device being
17 configured to automatically determine its current context by traversing at least one
18 node on at least one of the tree structures.

19
20 **35.** The device of claim 34, wherein the one or more hierarchical tree
21 structures comprise at least one primary tree structure, at least one secondary tree
22 structure, and at least one link between the primary and secondary tree structures,
23 the link being traversable to determine the device's current context.

1 **36.** The device of claim 34, wherein the one or more hierarchical tree
2 structures provide a common abstract representation of context.

3
4 **37.** The device of claim 32, wherein the device is configured to
5 determine current context dynamically.

6
7 **38.** The device of claim 32, wherein the device is configured to receive
8 policies from different policy sources.

9
10 **39.** The device of claim 32, wherein the device is configured to receive
11 policies from different policy sources, all of the policies being defined in terms of
12 a common abstract representation of context.

13
14 **40.** A method of operating a computing device comprising:
15 wirelessly receiving context information from externally of a computing
16 device, the context information pertaining to a current device context;
17 automatically determining, with the computing device, a current context
18 using the context information;
19 locally evaluating, with the computing device, a collection of policies in
20 connection with the current context to provide a resultant set of policies;
21 enforcing the resultant set of policies on one or more applications that are
22 executable by the computing device;
23 determining whether the device's current context has changed and if so,
24 automatically determining a new current context using received context
25 information;

1 responsive to determining the new current context, locally re-evaluating,
2 with the computing device, the collection of policies to provide a new resultant set
3 of policies for the new current context; and

4 enforcing the new resultant set of policies on the one or more applications.
5

6 **41.** The method of claim 40, wherein said receiving comprises receiving
7 context information from multiple different context providers that provide
8 different types of context information.
9

10 **42.** The method of claim 40, wherein said acts of automatically
11 determining comprise:

12 providing one or more hierarchical traversable tree structures on the device,
13 the tree structures comprising individual nodes each of which being associated
14 with a device context; and

15 traversing at least one node on at least one of the tree structures to provide
16 the current context.
17

18 **43.** The method of claim 42, wherein the one or more hierarchical tree
19 structures comprise at least one primary tree structure, at least one secondary tree
20 structure, and at least one link between the primary and secondary tree structures,
21 the link being traversable to determine the device's current context.
22

23 **44.** The method of claim 42, wherein the one or more hierarchical tree
24 structures provide a common abstract representation of context.
25

1 **45.** One or more computer-readable media having computer-readable
2 instructions thereon which, when executed by a computer, cause the computer to
3 implement the method of claim 40.

4
5 **46.** A computing device comprising:
6 one or more processors;
7 memory operably associated with the one or more processors;
8 one or more applications loadable in the memory and executable on the one
9 or more processors; and

10 the one or more processors being configured to:

11 receive location information pertaining to a current device location;

12 automatically determine a current location from the location
13 information;

14 locally evaluate a collection of policies in connection with the
15 current location to provide a resultant set of policies; and

16 enforce the resultant set of policies on the one or more applications.

17
18 **47.** The computing device of claim 46, wherein said one or more
19 processors are configured to receive location information from externally of the
20 device.

21
22 **48.** The computing device of claim 46, wherein the device is configured
23 to receive location information from multiple different location providers that
24 provide different types of location information.

1 **49.** The computing device of claim 46, further comprising one or more
2 hierarchical traversable tree structures on the device, the tree structures comprising
3 individual nodes each of which being associated with a device location, the device
4 being configured to automatically determine its current location by traversing at
5 least one node on at least one of the tree structures.

6
7 **50.** The computing device of claim 49, wherein the one or more
8 hierarchical tree structures comprise at least one primary tree structure, at least one
9 secondary tree structure, and at least one link between the primary and secondary
10 tree structures, the link being traversable to determine the device's current
11 location.

12
13 **51.** The computing device of claim 49, wherein the one or more
14 hierarchical tree structures provide a common abstract representation of location.

15
16 **52.** The computing device of claim 46, wherein the device is configured
17 to determine the current location dynamically.

18
19 **53.** The computing device of claim 46, wherein the device is configured
20 to receive policies from different policy sources.

1 **54.** The computing device of claim 46, wherein the device is configured
2 to receive policies from different policy sources, the policies from the different
3 policy sources being defined in terms of a common abstract representation of
4 location.

5
6 **55.** A method of operating a computing device comprising:
7 receiving location information pertaining to a current device location;
8 automatically determining, with the computing device, a current location
9 using the location information;

10 locally evaluating, with the computing device, a collection of policies in
11 connection with the current location to provide a resultant set of policies; and

12 enforcing the resultant set of policies on one or more applications that are
13 executable by the computing device.
14

15 **56.** The method of claim 55, wherein said receiving comprises receiving
16 the location information from externally of the device.
17

18 **57.** The method of claim 55, wherein said receiving comprises receiving
19 location information from multiple different location providers that provide
20 different types of location information.
21

22 **58.** The method of claim 55, wherein said receiving comprises
23 wirelessly receiving location information from multiple different location
24 providers that provide different types of location information.
25

1 **59.** The method of claim 55, wherein said automatically determining
2 comprises:

3 providing one or more hierarchical traversable tree structures on the device,
4 the tree structures comprising individual nodes each of which being associated
5 with a device location; and

6 traversing at least one node on at least one of the tree structures to provide
7 the current location.

8
9 **60.** The method of claim 59, wherein the one or more hierarchical tree
10 structures comprise at least one primary tree structure, at least one secondary tree
11 structure, and at least one link between the primary and secondary tree structures,
12 the link being traversable to determine the device's current location.

13
14 **61.** The method of claim 59, wherein the one or more hierarchical tree
15 structures provide a common abstract representation of location.

16
17 **62.** The method of claim 55 further comprising receiving policies from
18 multiple different policy sources.

19
20 **63.** The method of claim 55 further comprising receiving policies from
21 multiple different policy sources, the policies being defined in terms of a common
22 abstract representation of location.

1 **64.** One or more computer-readable media having computer-readable
2 instructions thereon which, when executed by a computer, cause the computer to
3 implement the method of claim 55.

4
5 **65.** A computing device comprising:
6 one or more processors;
7 memory operably associated with the one or more processors;
8 one or more applications loadable in the memory and executable on the one
9 or more processors; and

10 the one or more processors being configured to:

11 receive location information pertaining to a current device location;

12 automatically determine a current location from the location
13 information;

14 locally evaluate a collection of policies in connection with the
15 current location to provide a resultant set of policies;

16 enforce the resultant set of policies on the one or more applications;

17 and

18 responsive to receiving location information that indicates a change
19 of current location:

20 locally re-evaluate the collection of policies to provide a new
21 resultant set of policies; and

22 enforce the new resultant set of policies on the one or more
23 applications.
24
25

1 **66.** The computing device of claim 65, wherein the one or more
2 processors are configured to receive location information from externally of the
3 device.

4
5 **67.** The computing device of claim 65, wherein the device is configured
6 to receive location information from multiple different location providers that
7 provide different types of location information.

8
9 **68.** The computing device of claim 65 further comprising one or more
10 hierarchical traversable tree structures on the device, the tree structures comprising
11 individual nodes each of which being associated with a device location, the device
12 being configured to automatically determine its current location by traversing at
13 least one node on at least one of the tree structures.

14
15 **69.** The computing device of claim 68, wherein the one or more
16 hierarchical tree structures comprise at least one primary tree structure, at least one
17 secondary tree structure, and at least one link between the primary and secondary
18 tree structures, the link being traversable to determine the device's current
19 location.

20
21 **70.** The computing device of claim 68, wherein the one or more
22 hierarchical tree structures provide a common abstract representation of context.
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1 71. The computing device of claim 65, wherein the device is configured
2 to receive policies from different policies sources.

3
4 72. The computing device of claim 65, wherein the device is configured
5 to receive policies from different policies sources, all of the policies being defined
6 in terms of a common abstract representation of location.

7
8 73. A method of operating a computing device comprising:
9 wirelessly receiving location information from externally of a computing
10 device, the location information pertaining to a current device location;
11 automatically determining, with the computing device, a current location
12 using the location information;
13 locally evaluating, with the computing device, a collection of policies in
14 connection with the current location to provide a resultant set of policies;
15 enforcing the resultant set of policies on one or more applications that are
16 executable by the computing device;
17 determining whether the device's current location has changed and if so,
18 automatically determining a new current location using received location
19 information;
20 responsive to determining the new current location, locally re-evaluating,
21 with the computing device, the collection of policies to provide a new resultant set
22 of policies for the new current location; and
23 enforcing the new resultant set of policies on the one or more applications.
24
25

1 **74.** The method of claim 73, wherein said receiving comprises receiving
2 location information from multiple different location providers that provide
3 different types of location information.
4

5 **75.** The method of claim 73, wherein said acts of automatically
6 determining comprise:

7 providing one or more hierarchical traversable tree structures on the device,
8 the tree structures comprising individual nodes each of which being associated
9 with a device location; and

10 traversing at least one node on at least one of the tree structures to provide
11 the current location.
12

13 **76.** The method of claim 75, wherein the one or more hierarchical tree
14 structures comprise at least one primary tree structure, at least one secondary tree
15 structure, and at least one link between the primary and secondary tree structures,
16 the link being traversable to determine the device's current location.
17

18 **77.** The method of claim 75, wherein the one or more hierarchical tree
19 structures provide a common abstract representation of location.
20

21 **78.** One or more computer-readable media having computer-readable
22 instructions thereon which, when executed by a computer, cause the computer to
23 implement the method of claim 73.
24
25

1 **79.** A computing device comprising:
2 one or more processors;
3 memory operably associated with the one or more processors;
4 one or more applications loadable in the memory and executable on the one
5 or more processors; and

6 the one or more processors being configured to:

7 collect policies from multiple different policy sources to provide a
8 collection of policies, the policies being expressed in terms of context
9 dependencies associated with multiple different device contexts;

10 receive context information from externally of the device, the
11 context information pertaining to a current device context;

12 automatically determine a current context from the context
13 information;

14 locally evaluate the collection of policies in connection with the
15 current context to provide a resultant set of policies; and

16 enforce the resultant set of policies on the one or more applications.

17
18 **80.** The device of claim 79, wherein the device is configured to:

19 automatically determine when its context has changed;

20 locally re-evaluate the collection of policies to provide a new resultant set
21 of policies responsive to a context change; and

22 enforce the new resultant set of policies.

23
24 **81.** The device of claim 79, wherein the context comprises location.
25

1 **82.** A method of operating a computing device comprising:
2 collecting policies from multiple different policy sources to provide a
3 collection of policies, the policies being expressed in terms of context
4 dependencies associated with multiple different device contexts;
5 receiving context information from externally of a computing device, the
6 context information pertaining to a current device context;
7 automatically determining a current context from the context information;
8 locally evaluating the collection of policies in connection with the current
9 context to provide a resultant set of policies; and
10 enforcing the resultant set of policies on the device.

11
12 **83.** The method of claim 82 further comprising:
13 automatically determining when a device context has changed;
14 determining a new device context;
15 locally re-evaluating the collection of policies in connection with the new
16 device context to provide a new resultant set of policies; and
17 enforcing the new resultant set of policies on the device.

18
19 **84.** One or more computer-readable media having computer-readable
20 instructions thereon which, when executed by a computer, cause the computer to
21 implement the method of claim 82.
22
23
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1 **85.** One or more computer-readable media having computer-readable
2 instructions thereon which, when executed by a computer, cause the computer to
3 implement the method of claim 83.

4
5 **86.** A programmable computing device programmed with instructions
6 that implement the method of claim 82.

7
8 **87.** A programmable computing device programmed with instructions
9 that implement the method of claim 83.

10
11 **88.** A method of providing policies for enforcement on computing
12 devices comprising:

13 providing a representation of location using multiple hierarchical tree
14 structures each of which comprising multiple nodes, each node representing a
15 location that can be either a physical location or a logical location, the tree
16 structures comprising at least one link between them that can serve as a basis for a
17 traversal operation that traverses the multiple tree structures to derive a computing
18 device location; and

19 expressing multiple policies as a function of the representation of location.
20

21 **89.** One or more computer-readable media having computer-readable
22 instructions thereon which, when executed by a computer, cause the computer to
23 implement the method of claim 88.
24
25

1 **90.** A method of providing policies for enforcement on computing
2 devices comprising:

3 expressing multiple policies as a function of an abstract representation of
4 location that uses multiple hierarchical tree structures each of which comprising
5 multiple nodes, each node representing a location that can be either a physical
6 location or a logical location, the tree structures comprising at least one link
7 between them that can serve as a basis for a traversal operation that traverses the
8 multiple tree structures to derive a computing device location; and

9 making the multiple policies available to computing devices.

10
11 **91.** A computer architecture comprising:

12 a context service that provides context information or context change
13 events that pertain to the context of a computing device; and

14 a policy engine communicatively linked with the context service and
15 configured to:

16 receive context information or context change events from the
17 context service;

18 evaluate a collection of policies to provide a resultant set of policies
19 responsive to the context information or context change events; and

20 enforce the resultant set of policies on a computing device.

21
22 **92.** The computer architecture of claim 91, wherein the policy engine is
23 configured to enforce the resultant set of policies by promulgating new settings for
24 one or more applications that are executable by the computing device.
25

1 **93.** The computer architecture of claim 91, wherein the policy engine is
2 configured to enforce the resultant set of policies by promulgating new state for
3 one or more applications that are executable by the computing device.

4
5 **94.** The computer architecture of claim 91, wherein the policy engine is
6 configured to receive policies from multiple different policy sources.

7
8 **95.** A computing device embodying the computer architecture of claim
9 91.

10
11 **96.** An enterprise computing device embodying the computer
12 architecture of claim 91.

13
14 **97.** A computer system comprising:
15 a context service that provides context information or context change
16 events that pertain to the context of a computing device; and
17 a policy engine communicatively linked with the context service, but
18 remote from the computing device, and configured to:
19 receive context information or context change events from the
20 context service;
21 evaluate a collection of policies to provide a resultant set of policies
22 responsive to the context information or context change events; and
23 provide the resultant set of policies to the computing device.